

REMARKS

In view of the foregoing amendments and following remarks, Applicant respectfully requests reconsideration of the rejections set forth in the Office Action mailed March 21, 2005.

Restriction was required under 35 USC 121 and 372 to either Group I, claims 17-36 or Group II, Claims 37 and 38. Applicant hereby confirms the election of Group I, claims 17-36 without traverse. Applicant's election is without prejudice to Applicant's right to continue prosecution of claim 37 and 38 in a properly filed continuing application.

Claims 17-23, 26 and 30-36 were rejected under 35 USC 102(b) as being anticipated by Lee (4,935,539). Applicant submits that Lee '539 fails to anticipate the present invention.

The present invention is directed to an agitated reactor such as would be suitable for the production of hydrogen peroxide. The reactor is a vertically oriented unit which holds a liquid in which a solid is preferably suspended. At the bottom of the reactor is means for injecting two different gaseous reactants. The reactor is stirred or mixed via centrifugal turbines arranged along a single vertical agitating shaft. The centrifugal turbines are formed such that they mix the liquid containing the solid and the two gaseous reactants. The centrifugal turbines draw the components in the reactor to the central axis of the reactor and project the mixture radially outward in a horizontal plane. See page 4, lines 15-18 of the specification. This mixing provides for effective contact of the reactants.

Lee '539 discloses a continuous stirred-tank reactor in which the impeller does not provide for the centrifugal mixing pattern provided by the present invention. The impeller disclosed by Lee '539 comprises pitched blade turbines. The pitch of the turbine blades moves the liquid upwardly and outwardly from the shaft. See column 4, lines 43-46. This is contrary to the centrifugal turbines of the present invention which draw the reactants in toward the central axis of the reactor and projecting it radially outward in a horizontal plane. The apparatus of the present invention provides for a mixing pattern distinct from that disclosed by Lee '539.

Applicant submits that the apparatus of the present invention is neither anticipated or rendered

obvious by Lee '539.

Claims 31-34 were objected to as not providing further structural limitations. Applicant has cancelled claims 31-34 without prejudice to applicants right to continue prosecution of claims 31-34 in a properly filed continuing application.

Claims 17-19, 21-23 and 25-34 were rejected under 35 USC 102(b) as being anticipated by Shiraki et al. '636. Applicant submits that Shiraki et al. '636 fails to anticipate or render obvious the present invention.

Shiraki et al. '636 discloses an apparatus for oxidizing an alkyl-substituted aromatic compound in the liquid phase with a molecular oxygen-containing gas. The apparatus of Shiraki et al. '636 includes an agitator consisting of a rotating shaft provided along the axial direction of the vessel and plurality of stages of agitating blades. The agitating blades disclosed by Shiraki et al. '636 are not centrifugal turbines as provided for in the present invention. The agitating blades of Shiraki et al. '636 include comb-like blades and agitating blades. The agitating blades provide for a liquid flow pattern whereby the liquid is blown upward in the reaction vessel. See column 5, lines 64-68. Thus, Shiraki et al. '636 fails to anticipate a stirred reactor in which centrifugal turbines provide a liquid flow pattern of drawing the liquid into the central axis of the reactor and projecting it radially outward in the horizontal plane. The apparatus of the present invention provides for a mixing pattern distinct from that of Shiraki et al. '636. Applicant submits that the apparatus of the present invention is neither anticipated or rendered obvious by Shiraki et al. '636.

Claim 24 was rejected under 35 USC 103(a) as being unpatentable over Lee '539 further in view of Weetman '705. Applicant submits that Weetman '705 when read in combination with Lee '539 fails to remedy the deficiency discussed above with respect to Lee '539.

Weetman '705 discloses a fluid mixing impeller which provides an axial flow pattern. As set forth in Weetman at column 1 line 17, column 2, line 32 et seq. the impeller provides a axial flow pattern, that is a flow along the rotational axis of the impeller. Applicant submits that

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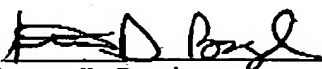
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Weetman '705 alone or in combination with Lee '539 fails to render obvious the mixing apparatus of the present invention where centrifugal turbines provide a liquid flow pattern comprising drawing the liquid into the central axis of the reactor and projecting it radially outward in the horizontal plane.

In view of the forgoing comments, applicant submits that claims 17-30, 35 and 36 are in condition for allowance and prompt favorable action is solicited.

Respectfully submitted,

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